

Science and Invention

Things a Mechanical Engineer Knows About Psychics

IN HIS newest contribution to the cause, "Experiments in Psychical Science," published by E. P. Dutton & Co., W. J. Crawford, D. Sc., takes up levitation, contact and direct voice—and takes them up, by the way, in a manner which makes even the very skeptical reader pause and reflect.

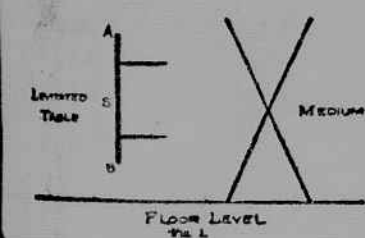
First of all, it is well to note that Professor Crawford is a lecturer in mechanical engineering (not a professional or amateur experimenter in the occult). His approach to the study of psychic phenomena is made strictly through the channel of sober science. His methods are the methods of the laboratory. He uses weighing machines. He takes the measure of the psychic force; works out its laws; observes its minutest effects. His purpose in writing is, he tells us, "to advance our knowledge of psychic phenomena and the laws underlying them." And Professor Crawford is not by any means the first eminent scientist to be profoundly aware of these phenomena.

We are plunged, almost at once, into a consideration of psychic energy, which, the writer declares, is at a maximum about an hour and a half from the opening of a séance. At such a time, we are told—

"Although a heavy man sits upon the table, it moves about the floor with great ease; or, the table being levitated, a strong man pushing from the top cannot depress it to the floor; or the table moves to the side of the circle furthest from the medium and an experimenter is asked to hold it of it and try to prevent its return to the center, but he is totally unable to do so; or the table's weight can be temporarily so much increased that it cannot be lifted, or on the other hand so much reduced that it can be raised by an upward force of an ounce or two; or, the table being turned upside down on the floor, cannot be raised by a strong upward pull on the legs, being apparently fastened to the floor.

New Levitations

"Besides the ordinary standard type of levitation in which the table rises vertically into the air in a normal manner, various modified and peculiar types of the phenomenon have occurred. At a recent séance the table turned over on its side with edge of surface and two legs on the floor, surface remote from medium. Then it levitated in that position (Fig. 1), remaining in the air for about half a minute, with lowest edge about a half a foot above the floor. The surface (S) was about



four feet from the body of the medium. It levitated again in the same way, and then turned over in the air, very slowly at first, and then jerkily, until the surface was horizontal and it had attained a normal levitated position. Fig. 2 gives successive positions.

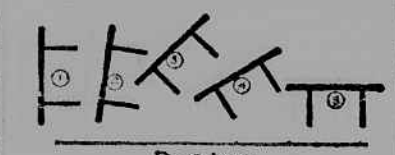
"At subsequent séances the table turned completely over, as above, both broadside and endwise, i. e., where in the one case A B (Fig. 1) represents the short edge, and, in the other case, the long edge of the surface.

"While at position (3), i. e., where the table was inclined about 45 degrees to the floor, the operators seemed to experience the greatest difficulty in the carrying out of this phenomenon. They seemed to have no trouble in levitating the table as at (1), and in turning it over in the air to about position (2), but a halt always occurred at (3). Sometimes even the table dropped there, the completed phenomenon evidently being impossible, despite the almost frantic efforts of the operators.

"At other times, after a brief halt, and various shakings and jerkings in the air, the table was turned over into positions (4) and (5). At the critical point (3) sounds were often heard on the surface and legs of the table, as though suckers were slipping over the wood, or were being forced off, or were making new grips. There could be no mistaking these sounds, for they made up an audible swish.

"On one or two occasions the table dropped six inches or so in the air, and simultaneously there was heard the swishing noise, the inference being

that a sucker had been torn from its grip. The operators themselves say that during these abnormal levitations, they have several psychic rods projecting from the medium simultaneously, and that they grip the surface, the legs, and the crossbars (if the table possesses them) with the ends of these rods, which resemble straight arms, having the power to take a suc-



tion grip on wooden surfaces with their free extremities.

"Up to position (3) (Fig. 2), it is easily understandable that the rods could fairly easily grip the legs, or under surface of the table (perhaps three rods being in operation at once), and turn the table partly over as shown; but about position (3) there would have to be a new disposition of the rods; or one or more of them would have to let go and take a grip on another part of the table; or owing to the awkward position reached, some of the rods would have too much stress upon them and would be likely to slip (which seems actually to occur, if we may judge from the sounds heard); and in general new arrangements would have to be made.

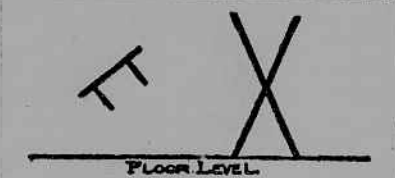
"Imagine a man sitting in the medium's chair, and, instead of his two arms, to possess three or four unjointed rods, which he can move up and down, to and fro, which he can shorten and lengthen, but which he cannot bend, and with the ends of which he can take a suction grip on various parts of the table, and we have a fairly good idea of what is taking place during the occurrence of the phenomenon.

"The psychic rods are usually quite invisible.

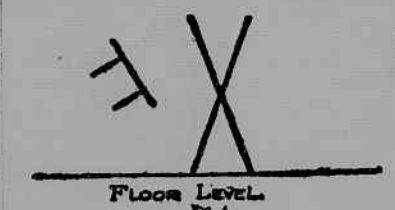
"Abnormal levitations (in each case lasting for a minute, or longer, not merely transitory) have also occurred as in Figure 3, where the table remains in the air inclined as shown, with legs toward medium, and as in Figure 4, where the legs were directed away from the medium.

According to Operators

"The shape of the cantilever at the end of my first series of experiments



was comparatively doubtful. I took it to be roughly as follows (see Figure 5): Here M is the medium, T the levitated table, and A B the levitating cantilever, the last consisting of two main portions, A an arm springing from the medium, and B a vertical column continuous with the arm pressing upward on the under surface of the table. I have since taken the opportunity to thoroughly question the operators as to its shape. A séance was held at my own house and replies were given to



questions by means of raps, blows, shufflings on the floor, etc.

"The following was the code: "Three raps meant 'Yes.' "One rap meant 'No.' "Two raps meant 'Doubtful.' "A continuous series of raps meant that the operators wished to say something on their own account, i. e., they wished the alphabet spelled out to them, so that they could interpolate a word, or a short sentence.

"A long scraping sound on the floor meant that my supposition (on which I was basing the question) was not quite correct, although it contained some elements of the truth.

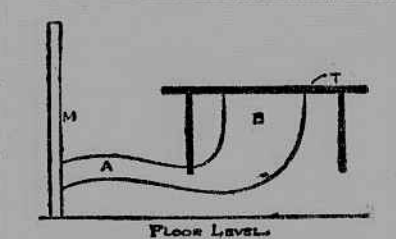
"A great many emotions, such as joy, sorrow, agreement, disagreement, friendliness, anger, etc., were often also indicated by the various states of rapping. For instance, loud, emphatic blows in answer to a question indicated (according to their number) strong agreement or disagreement; or if a lot of questions were asked, none of which seemed to hit the exact truth, and a final question did actually strike it, there was a little fusillade of raps, indicating that the correct solution had at last been reached. Sometimes the operators seemed so pleased at my guessing something correctly that they suddenly rapped out a lively little tune on the floor.

"The reader should understand that the following description of the levitating structure is given by the operators and that I am not responsible for it, and do not attach undue importance

Professor Crawford Finds That Invisible "Operators" Work Through Medium by Means of Psychic Rods---Cantilever System Generally Employed---Takes Weight Off Medium and Puts It Back Again---Affects Sitters

to it. Nevertheless, it has its points of interest and I think should be included.

"With regard to the dimensions of the cantilever structure, I first asked



the operators if they understood what a 'cross section' was.

"They answered 'No.' Then I went on as follows:

"Q. Do you know the meaning of the words 'diameter' or 'thickness'?

"A. Yes.

"Q. Do you know the magnitude of the dimension we call an inch?

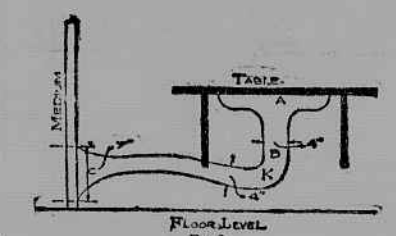
"A. Yes.

"When I asked them to rap out the number of inches in a certain part of the structure they usually hesitated for a little, as though thinking the matter over, and then rapped out the number decisively and firmly.

Normal Cantilever

"According to the operators, the dimensions and shape of a normal levitating cantilever are as shown in Figure 6.

"(a) The top of the columnar part



of the cantilever is spread out into a broad flat surface of area, approximating the under surface of the table. In other words, the head of the cantilever is shaped like a mushroom, and even bears some analogy to that boy's plaything known as a sucker.

"(b) A fairly uniform vertical column of diameter about 4 inches. At K the cantilever changes its direction from vertical to more or less horizontal. At K the structure is 8 or 4 inches above the floor.

"(c) Just before entering the body of the medium the rod widens to a diameter of about 7 inches. The rod does not branch out like the roots of

How the Medium Is Made to Tilt Forward

PROFESSOR CRAWFORD wanted to test the cantilever and see whether weights placed on the levitated table would not tend to tip the medium over. He writes:

"The medium sat on her usual chair, which was standing on the floor, i. e., the chair was not placed on the platform of the weighing machine. She sat perfectly still with her hands on her knees, and was thus isolated from all the members of the circle. I asked her to remain quite passive and report her sensations to me.

"The weight of the table was 7 lbs. 14 oz.

"While the table was levitated I placed three 10-lb. weights upon it in succession, making a total levitation load of 37 lbs. 14 oz. The table did not descend to the floor between the loadings to allow me to put on the additional weights (as in experiment 1), but remained up the whole time.

"Up to a total levitated weight of 37 lbs. 14 oz. there was no very pronounced effect on the medium. Her trunk, however, swung gently forward with the additional weights and she said she felt herself being urged forward, though she felt no kind of mechanical pressure on her body.

"I then increased the weight on the levitated table two pounds at a time up to 39 lbs. (total weight, including the table, 43 lbs. 14 oz.). Several times I

placed an additional 4-lb. weight on the table (total, including the table, 47 lbs. 14 oz.). When the table levitated the medium's chair tilted forward on its two front legs and then the table dropped.

"As the dead weight of about 48 lbs. seemed to be near the limit for this kind of levitation I removed the weights. The table then levitated alone and I pressed it down with considerable force.

"On some occasions (I made the experiment many times) while I was pressing strongly downward, the medium's body tilted forward and on other occasions it did not. She told me that when she did not move forward she felt no inclination to tilt at all and when she did move forward she simply could not help herself, although she felt no mechanical pressure on her body. This alternative tilting and not tilting of the medium's body (the two phases occurred in alternation with succeeding levitations) took place so often that I suspected the operators were trying to bring something to my notice, so I asked them if the levitating structure was sometimes a true cantilever, i. e., no part of it touching the floor, and sometimes not a true cantilever, i. e., with the free end resting on the floor under the table.

"They vigorously assented to this and demonstrated for my benefit. I said: 'I want you to levitate the table with a true cantilever and I will press down hard on the table.' They immediately produced levitation and I found that on all occasions of making the

medium feel a true cantilever the medium felt an inclination to overturn and her body swung forward.

"I then said: 'Levitate the table with a true cantilever, but let the end of it rest on the floor immediately under the table, so that the column forms a kind of prop between floor and table.' (See Figs. 8 and 9.) They then produced levitation, and on all such occasions of the phenomenon under this proviso the medium felt no inclination to overturn when I pressed down vigorously and her body was not moved.

"The operators say that at demonstration séances they rest the end of the cantilever upon the floor immediately under the table, so that when a strong man stands over the levitated table and exerts great pressure upon it the medium is protected from the large reaction forces, the latter in

this case being on the floor instead of on her body."

An incident is thus recorded: "An experimenter was inside the circle space and the table was levitated. He was anxious to experience the various psychic resistances to applied forces. Accordingly he pushed down on the table and felt elastic resistance to levitation and he pushed inward toward the medium and felt the rigid resistance.

"He then asked the operators to place the table on the floor and to prevent him pushing it inward toward the medium. The table descended to the floor. As soon as it reached it the experimenter heard a sucking noise on the under surface as though a sucker there was relaxing or changing its grip and simultaneously the same kind of noise on each front leg as though suckers were taking hold there. The light was quite good and there was nothing to be seen.

"We asked the operators whereabouts on the table they had their grip and they immediately gave audible demonstration by rapping on each front leg and on the under surface.

"They said they had three psychic arms out in this particular case.

"They also declared that they can have as many as six arms or rods out at one time."

"I obtained four little metal gliders and hammered them into the feet of the medium's chair so that it could slide more easily and uniformly along the floor than was the case without them. The only other apparatus was a piece of fairly stiff pasteboard about 12 inches long by 3 inches wide. I informed the operators that I would first see if there was any downward force on the floor in front of the medium while the medium and her chair were being moved backward. Accordingly I placed the piece of pasteboard flat on the floor beneath the table (which was standing within the circle), holding the end of it remote from the medium in my fingers. I could thus easily tell if any downward force was being exerted on the pasteboard by the difficulty I would experience in trying to lift it from the floor. I asked the operators to proceed with the test.

"Nothing happened for a considerable time and I was beginning to think that the explanation of the operators was incorrect when they informed me by raps that an aura from my hand holding the end of the pasteboard was interfering with the phenomenon. On asking if I should put on gloves they answered in the affirmative and I accordingly did so. In a short time the chair and medium began to slide slowly backward along the floor.

"During the whole period of the movement there was a great downward force on the pasteboard—so great, in fact, that I was quite unable to raise it from the floor, although I tried my hardest. I carried out the experiment again with like result. The medium's chair slid back altogether about a foot or so, but the location of the downward force did not seem to change, i. e., to recede from the chair. It thus appeared that the first part of the operator's statement that a rod issuing from the medium inclines downward to the floor in front of her, where it presses on and grips the floor strongly, has some basis in fact.

"I then went over beside the medium and placed the piece of pasteboard vertically against one of the front legs of her chair, resting the lower edge on the floor. While the medium and her chair were being slowly moved backward along the floor I found that there was a great horizontal force exerted on the pasteboard and through the pasteboard onto the leg of the chair. So great was the force that while it was being exerted I was quite unable, although I tried several times, to remove the pasteboard from its position against the leg of the chair. The force appeared to be exerted horizontally on the leg quite low down—not more than an inch or two above the

floor. I was just expecting the machine to move."

"The fact that the inclined rod at its floor end actually grips and does not merely rest on the floor was audibly demonstrated. Several times during the preliminary attempts to move the weighing machine and medium the end at K was evidently torn from its hold on the floor, for a sharp, shuffling noise was heard on two occasions resembling the noise likely to be made by the forcible pulling from its grip of a plastic gripping material. And this occurred at moments when I was just expecting the machine to move."

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medium. I want you to take out from her body the matter you use in the construction of the cantilever you employ to levitate this table (weight 12 1/2 pounds) and to place this matter loosely on the floor—not to build up the cantilever, but simply to place the matter required for it on the floor. Give three raps when you have done this."

"The medium's weight began to decrease and in a few minutes became fairly steady. Then I heard the three raps signifying that the operation was complete.

"Result:

Weight of medium + chair + board before the experiment = 138 1/2 lbs. Fairly steady weight of medium + chair + board after raps were given = 122 1/2 lbs. Decrease in weight of medium (correct to 2 or 3 lbs.) = 16 lbs.

"It is noteworthy that when I carried out the same test about eighteen months previously I obtained the same result within a pound or two."

Experiment 23: "I ASKED the operators to take as much matter as they possibly could from the medium's body and to rest it on the floor. Three raps were given when this was supposed to be done.

"Result:

Weight of medium + chair + board before the experiment = 138 1/2 lbs. Weight of medium + chair + board when the three raps were given = 84 lbs. Decrease in weight of medium (correct to 2 or 3 lbs.) = 54 1/2 lbs.

"The weight decreased in fluxes, seemingly as though the operators were pulling the matter out against the action of something resembling a spring. After about the 30-lb. mark was passed the pulls on the medium's body were evidently severe, as she became somewhat restless. Sometimes, when the maximum diminution of weight was being approached there were quick, jerky decreases of weight which could not be maintained and the lost weight flew back. But the loss of 54 lbs. given above (nearly the medium's normal weight) was fairly held for eight or nine seconds while I was taking the reading. There were fluxes of six or eight pounds more than this, but they could not be held long enough for me to get a satisfactory reading. As I have said, it would seem that the matter was tending to be pulled back into the medium's body by something resembling a spring, for the more matter removed the stronger the restraining force became.

"The above are a few of the results which are gradually leading me to the conclusion that the psychic rods that produce the phenomena are, for all their invisibility and impalpability, really packed with matter, but matter which has taken on a form unknown to science."

Experiment 18: Movement of Medium and Chair Along the Floor

"I OBTAINED four little metal gliders and hammered them into the feet of the medium's chair so that it could slide more easily and uniformly along the floor than was the case without them. The only other apparatus was a piece of fairly stiff pasteboard about 12 inches long by 3 inches wide. I informed the operators that I would first see if there was any downward force on the floor in front of the medium while the medium and her chair were being moved backward. Accordingly I placed the piece of pasteboard flat on the floor beneath the table (which was standing within the circle), holding the end of it remote from the medium in my fingers. I could thus easily tell if any downward force was being exerted on the pasteboard by the difficulty I would experience in trying to lift it from the floor. I asked the operators to proceed with the test.

"Nothing happened for a considerable time and I was beginning to think that the explanation of the operators was incorrect when they informed me by raps that an aura from my hand holding the end of the pasteboard was interfering with the phenomenon. On asking if I should put on gloves they answered in the affirmative and I accordingly did so. In a short time the chair and medium began to slide slowly backward along the floor.

"During the whole period of the movement there was a great downward force on the pasteboard—so great, in fact, that I was quite unable to raise it from the floor, although I tried my hardest. I carried out the experiment again with like result. The medium's chair slid back altogether about a foot or so, but the location of the downward force did not seem to change, i. e., to recede from the chair. It thus appeared that the first part of the operator's statement that a rod issuing from the medium inclines downward to the floor in front of her, where it presses on and grips the floor strongly, has some basis in fact.

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Weight of medium + chair + board before the experiment = 138 1/2 lbs. Weight of medium + chair + board when the three raps were given = 84 lbs. Decrease in weight of medium (correct to 2 or 3 lbs.) = 54 1/2 lbs.

"The weight decreased in fluxes, seemingly as though the operators were pulling the matter out against the action of something resembling a spring. After about the 30-lb. mark was passed the pulls on the medium's body were evidently severe, as she became somewhat restless. Sometimes, when the maximum diminution of weight was being approached there were quick, jerky decreases of weight which could not be maintained and the lost weight flew back. But the loss of 54 lbs. given above (nearly the medium's normal weight) was fairly held for eight or nine seconds while I was taking the reading. There were fluxes of six or eight pounds more than this, but they could not be held long enough for me to get a satisfactory reading. As I have said, it would seem that the matter was tending to be pulled back into the medium's body by something resembling a spring, for the more matter removed the stronger the restraining force became.

"The above are a few of the results which are gradually leading me to the conclusion that the psychic rods that produce the phenomena are, for all their invisibility and impalpability, really packed with matter, but matter which has taken on a form unknown to science."

Experiment 18: Movement of Medium and Chair Along the Floor

"I OBTAINED four little metal gliders and hammered them into the feet of the medium's chair so that it could slide more easily and uniformly along the floor than was the case without them. The only other apparatus was a piece of fairly stiff pasteboard about 12 inches long by 3 inches wide. I informed the operators that I would first see if there was any downward force on the floor in front of the medium while the medium and her chair were being moved backward. Accordingly I placed the piece of pasteboard flat on the floor beneath the table (which was standing within the circle), holding the end of it remote from the medium in my fingers. I could thus easily tell if any downward force was being exerted on the pasteboard by the difficulty I would experience in trying to lift it from the floor. I asked the operators to proceed with the test.

"Nothing happened for a considerable time and I was beginning to think that the explanation of the operators was incorrect when they informed me by raps that an aura from my hand holding the end of the pasteboard was interfering with the phenomenon. On asking if I should put on gloves they answered in the affirmative and I accordingly did so. In a short time the chair and medium began to slide slowly backward along the floor.

"During the whole period of the movement there was a great downward force on the pasteboard—so great, in fact, that I was quite unable to raise it from the floor, although I tried my hardest. I carried out the experiment again with like result. The medium's chair slid back altogether about a foot or so, but the location of the downward force did not seem to change, i. e., to recede from the chair.